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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,602	10/24/2003	Gi-Hong Kim	8733.830.00-US	7293
30827	7590	08/09/2005	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			SCHECHTER, ANDREW M	
1900 K STREET, NW			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2871	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/691,602	KIM, GI-HONG	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 16-32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-58 is/are allowed.
- 6) ☒ Claim(s) 1-5, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 6-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Fig. 10b shows "linearly polarized light of 0°" with a vertical arrow and a circle with a dot in it (the symbol for the 90° version, as in Fig. 10a), while it should be a vertical arrow with a double-headed arrow crossing it (see Fig. 8B). Note that this symbol appears incorrectly in Fig. 10b twice. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by *Suzuki et al.*, US 2002/0047965.

Suzuki discloses [see Fig. 15, for instance] a liquid crystal display device comprising a first substrate [807] a second substrate [803], a light absorption layer [806], a cholesteric liquid crystal color filter [805] on the light absorption layer, selectively reflecting light having a wavelength range corresponding to one of red, green, and blue [see paragraph 0149, for instance], a first transparent electrode [815] arranged on the CCF layer, a first orientation film [813a], a second transparent electrode [812], a second orientation film [813b], where the orientation films have substantially identical orientation directions [826a, 825b, see Fig. 15b], a polarizing plate [801] arranged on an outer surface of the second substrate, and a layer of liquid crystal material [804] including a plurality of liquid crystal molecules having a substantially symmetrical orientation about a mid-point between the first and second orientation films [see paragraph 0168, "is caused to rise in a direction perpendicular to the substrate", so the liquid crystal molecules are vertical and thus symmetric about the mid-point of the layer; note that the molecules depicted in Fig. 15a are shown only partway to

"perpendicular", presumably in order to illustrate the "rise domains" whose molecules take different paths from horizontal to vertical when an electric field is applied]. Claim 1 is therefore anticipated.

The polarizing plate is a linear polarizer, so claim 2 is also anticipated. There is a compensating film [802] between the second substrate and the polarizing plate, so claim 5 is also anticipated.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3, 4, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Suzuki et al.*, US 2002/0047965 as applied above, in view of *Moon et al.*, US 2002/0135719.

Suzuki discloses an array element layer comprising a gate line [822], a data line [820] crossing the gate line, and a thin film transistor [see Fig. 15] connected to them. However, it is arranged on the first substrate rather than the second substrate. *Moon* discloses an analogous device with the analogous TFT arranged on the second substrate, and teaches that it can be on either substrate [see paragraph 0029]. Thus, it is an art-recognized equivalent to have the TFT on either substrate or the other; it would therefore have been obvious to one of ordinary skill in the art at the time of the invention

to have the TFT on the second substrate, motivated by the equivalency of the two options. Claim 3 is therefore unpatentable.

In both *Suzuki* and *Moon*, the array element layer is arranged between the inner surface of the substrate and the transparent electrode, so claim 4 is also unpatentable. In *Suzuki*, the first and second transparent electrodes are the pixel and common electrodes, respectively. With the TFT on the second substrate, these are flipped so they are the common and pixel electrodes, respectively; claims 14 and 15 are therefore unpatentable as well.

6. Claims 1-5, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Moon et al.*, US 2002/0135719 in view of *Okumura*, US 2003/0086038.

Moon discloses [see Fig. 4, for instance] a liquid crystal display device comprising a first substrate [150] a second substrate [110], a light absorption layer [154], a cholesteric liquid crystal color filter [152] on the light absorption layer, selectively reflecting light having a wavelength range corresponding to one of red, green, and blue [see Fig. 4], a first transparent electrode [156] arranged on the CCF layer, a second transparent electrode [112], a polarizing plate [114] arranged on an outer surface of the second substrate, and a layer of liquid crystal material [130].

Moon does not disclose that there are two orientations films with substantially identical orientation directions. *Okumura* discloses an analogous device using two orientation films [16, 23 in Fig. 2, for instance] with a 0° twist angle [see abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention to

use such a 0° twist angle, requiring substantially identical orientation directions in the device of *Moon*, motivated by *Okumura*'s teaching that doing so makes it possible to optimize the display characteristics such as brightness and contrast for the device [see paragraph 0081].

Moon does not disclose that the liquid crystal molecules have a substantially symmetrical orientation about a mid-point between the first and second orientation films. As discussed in *Okumura*, when a voltage is applied, the liquid crystal molecules line up along the (vertical) electric field lines, perpendicular to the substrate, so that they have a substantially symmetrical orientation about the mid-point of the layer [compare Figs. 3 and 4]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have it so in the device of *Moon*, motivated by the desire to control the light going through the device by rotating the liquid crystal molecules in the conventional manner. Claim 1 is therefore unpatentable.

In *Moon*, the polarizing plate is a linear polarizer, so claim 2 is also unpatentable. The TFT with gate and data lines is on the second substrate, between the second substrate and the second transparent electrode, so claims 3 and 4 are also unpatentable. There is a compensating film [116] between the polarizing plate and the second substrate, so claim 5 is also unpatentable. The first and second transparent electrodes include a common and pixel electrode, respectively, so claims 14 and 15 are also unpatentable.

Allowable Subject Matter

7. Claims 6-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 33-58 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose the device of claim 6, in particular the additional limitations that the liquid crystal material functions in optical compensated birefringence mode [OCB]. Claim 6 would therefore be allowable if rewritten appropriately, as would claims 7-13 which depend on claim 6.

The prior art does not disclose the device of claim 33, in particular the limitations that there is a cholesteric liquid crystal color filter and a layer of liquid crystal material having a first retardation value of $3\lambda/4$ with a first applied voltage and a second retardation value of $\lambda/4$ with a second applied voltage. Claim 33 is therefore allowed, as are its dependent claims 34-58.

Election/Restrictions

10. Applicant's election with traverse of Species I in the reply filed on 23 May 2005 is acknowledged. The traversal is on the ground(s) that claims 38 and 39 are not generic and should be included in Species I. The examiner agrees that claims 38 and 39 can

be included in Species I, though the point is moot in view of the allowability of the generic claim 33.

The requirement is still deemed proper and is therefore made FINAL.

11. Claims 16-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 23 May 2005.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Ozawa, US 2003/0081161, discloses a transmissive version of the device recited in claim 1, except that it is silent on the orientation directions being identical.

Okumura, US 2003/0086038, teaches using a 0° twist angle for an analogous device, which means that the orientation directions would identical.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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Primary Examiner
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6 August 2005